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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ZHENG, EVA Y	
ART UNIT	PAPER NUMBER
2634	6

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/850,124	BALACHANDRAN ET AL.	
	Examiner	Art Unit	
	Eva Yi Zheng	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 5/7/01.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 5.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: on page 7, line 9, phrase: "some instances my be" should be changed to --some instances may be--.

Appropriate correction is required.

Claim Objections

2. Claims 6, 10, 22, 24 and 26 are objected to because of the following informalities:

a) Regarding claims 6 and 10, on line 3, "initializing a hopping set of a size of N frequencies" should be changed to -- initializing a hopping set of a size of F frequencies--.

b) Regarding claims 22, 24 and 26, on line 2, "a memory for storing a hopping set comprising N frequencies" should be changed to -- a memory for storing a hopping set comprising F frequencies--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 9 recites the limitation "the step of shifting" on line 2. There is insufficient antecedent basis for this limitation in the claim. It should be changed to --a step of shifting--.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 3, 5, 6, 8 -10, 12 -17, 19, 21, 22 and 24-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Kung et al. (4,654, 859).

a) Regarding claim 1, Kung et al. disclose a method for use in wireless equipment, the method comprising the steps of

transmitting signals using frequency hopping over a time period T (Fig. 2 and 3),

by selecting a frequency (Col 4, L62-63) from a set of N frequencies (as shown in Fig. 2 and 3) such that over at least a portion of the time period T (as shown in Fig 2 and 3),

the frequency selection is constrained to less than the N frequencies (Col 4, L 42-60).

b) Regarding claim 3, Kung et al. disclose a method of frequency hopping for use in wireless equipment, the method comprising the steps of:

storing a set of hopping frequencies (32 in Fig.1); and

selecting frequencies (Col 4, L62-63) from the set of hopping frequencies over a time period T by limiting the available frequencies from the hopping set over at least a portion of the time period T (as shown in Fig. 2 and 3).

c) Regarding claim 5, Kung et al. disclose a method of frequency hopping for use in wireless equipment, the method comprising the steps of:

initializing a hopping set to a size of F frequencies (Col 2, L 45, imply as "30 frequencies"), the hopping set used to select therefrom hopping frequencies over a time period T (as shown in Fig. 2 and 3); and

reducing the size of the hopping set over a portion of the time period T by at least one frequency (Col 2, L40-41).

d) Regarding claim 6, Kung et al. disclose a method of frequency hopping for use in wireless equipment, the method comprising the steps of

initializing a hopping set to a size of N frequencies (Col 2, L 45, imply as "30 frequencies"), the hopping set used to select therefrom hopping frequencies over a time period T (as shown in Fig. 2 and 3); and

selecting frequencies (Col 4, L62-63) from the hopping set over the time period T such that at least one of the selected frequencies is prohibited from subsequent selection in at least a portion of the time period T (as shown in Fig 2 and 3).

e) Regarding claim 10, Kung et al. disclose a method of frequency hopping for use in wireless equipment, the method comprising the steps of

initializing a hopping set to a size of N frequencies (Col 2, L 45, imply as "30 frequencies"), the hopping set used to select therefrom hopping frequencies over a time period T (as shown in Fig. 2 and 3);

dividing the hopping set into an allowable frequency set and a prohibited frequency set (Col 2, L45-47, imply as "at least 10 Khz");

selecting frequencies from the allowable frequency set (Col 4, L62-63); and

after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set (Col 2, L 32-47).

f) Regarding claim 12, Kung et al. disclose the method of claim 10 wherein membership in the allowable frequency set and the prohibited frequency set at a current time is derived from knowledge of the allowable frequency set and the prohibited frequency set at an earlier time (Col 2, L 32-47).

g) Regarding claim 13, Kung et al. disclose the method of claim 10 wherein knowledge of the allowable frequency set and the prohibited frequency set at a particular time is provided by one wireless endpoint to the other wireless endpoint through explicit signaling (Col 2, L 24-31).

h) Regarding claim 14, Kung et al. disclose the method of claim 10 wherein all N frequencies in the hopping set are assumed allowable at pre-determined time instants (Col 2, L32-33).

i) Regarding claim 15, Kung et al. disclose a method of frequency hopping for use in wireless equipment, the method comprising the steps of

dividing a hopping set into an allowable frequency set and a prohibited frequency set (Col 2, L45-47, imply as "at least 10 Khz"); and

transmitting information associated with the division of the hopping set to another wireless endpoint (30 in Fig. 1).

j) Regarding claim 16, Kung et al. disclose the method of claim 15 wherein the transmitted information enables the other wireless endpoint to derive the allowable frequency set (Col 2, L24-31).

k) Regarding claim 17, Kung et al. disclose a wireless endpoint comprising:

a transmitter for transmitting signals using frequency hopping over a time period T (as shown in Fig. 2 and 3); and

a processor (34 in Fig. 1) for selecting a frequency from a set of N frequencies (Col 4, L62-63) such that over at least a portion of the time period T, the frequency selection is constrained to less than the N frequencies (Col 4, L 42-60).

l) Regarding claims 19, 21, 22 and 26, Kung et al. disclose a wireless endpoint comprising:

a memory for storing a hopping set comprising N frequencies (32 in Fig. 1), the hopping set used to select therefrom hopping frequencies over a time period T; and

a processor (34 in Fig. 1) for (a) dividing the hopping set into an allowable frequency set and a prohibited frequency set, (b) selecting frequencies from the allowable frequency set, and (c) after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set.

m) Regarding claims 8, 9, 24 and 25, Kung et al. disclose a wireless endpoint comprising:

a memory for storing a hopping set comprising N frequencies (32 in Fig. 1), the hopping set used to select therefrom hopping frequencies over a time period T; and

a processor (34 in Fig. 1) for (a) determining a hopping index value, (b) modifying the hopping index value by at least the modulo of a number F, where F: N, (c) selecting a hopping frequency from the hopping set as a function of the modified hopping index value, (d) adjusting the order of the hopping set such that the selected hopping frequency is now at a position corresponding to the value of F, (e) reducing the value of F; and (f) returning to (a) (Col 2 , L 32-47).

7. Claims 1, 3, 5, 6, 10,15, 17, 19, 21, 22, 24 and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Emi (5,541,954).

a) Regarding claims 1, 5, 6, 10, 15 and 17, Emi discloses a method for use in wireless equipment, the method comprising the steps of

transmitting signals using frequency hopping over a time period T (Fig. 7 and 8),

by selecting a frequency (Col 7, L 60- Col 8, L 4) from a set of N frequencies (Col 7, L 62-63) such that over at least a portion of the time period T (as shown in Fig 7 and 8),

the frequency selection is constrained to less than the N frequencies (Col 7, L 60- Col 8, L 4).

b) Regarding claim 3, 19, 21, 22, 24 and 26, Emi discloses a wireless endpoint comprising:

a memory for storing a hopping set comprising N frequencies (11 in Fig. 1A), the hopping set used to select therefrom hopping frequencies over a time period T; and

a processor (17 in Fig. 1A) for (a) dividing the hopping set into an allowable frequency set and a prohibited frequency set, (b) selecting frequencies from the allowable frequency set, and (c) after at least one frequency selection, adjusting the membership in the allowable frequency set and the prohibited frequency set (Col 6, L56 - Col 7, L1).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 2, 4, 7, 11, 18, 20, 23 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kung et al. (4,654, 859).

Regarding claim 2, 4, 7, 11, 18, 20, 23 and 27, Kung et al. disclose all the subject matter described above, except the specific teaching of a selecting step selects the frequency pseudo-randomly.

However, it is well known in the art that a frequency hopping spread spectrum carrier hops on a predetermined pseudo random pattern. Therefore, it

would have been obvious to one of ordinary skill in the art at the time of invention was made to understand and realize that the frequency hopping communication system by Kung et al. select frequency pseudo-randomly.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eva Yi Zheng whose telephone number is 703-305-8699. The examiner can normally be reached on 7:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-879-9306.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Eva Yi Zheng
Examiner
Art Unit 2634

May 4, 2004

SHUWANG LIU
PRIMARY EXAMINER